

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
12 January 2006 (12.01.2006)

PCT

(10) International Publication Number  
**WO 2006/004220 A1**

(51) International Patent Classification<sup>7</sup>: **H04B 1/38,**  
H04M 1/725

[JP/JP]; c/o SEIKO EPSON CORPORATION, 3-5, Owa  
3-Chome, Suwa, a-Shi, Nagano, 3928502 (JP).

(21) International Application Number:  
PCT/JP2005/012728

(74) Agents: **KAMIYANAGI, Masataka et al.**; c/o Intellectual  
Property Division, SEIKO EPSON CORPORATION, 3-5,  
Owa 3-Chome, Suwa-Shi, Nagano 392-8502 (JP).

(22) International Filing Date: 5 July 2005 (05.07.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
2004-199421 6 July 2004 (06.07.2004) JP  
2004-367203 20 December 2004 (20.12.2004) JP

(81) Designated States (*unless otherwise indicated, for every  
kind of national protection available*): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG,  
KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM,  
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM,  
SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN,  
YU, ZA, ZM, ZW.

(71) Applicant (*for all designated States except US*): **SEIKO  
EPSON CORPORATION** [JP/JP]; 4-1, Nishi-Shinjuku  
2-Chome, Shinjuku-Ku, Tokyo, 1630811 (JP).

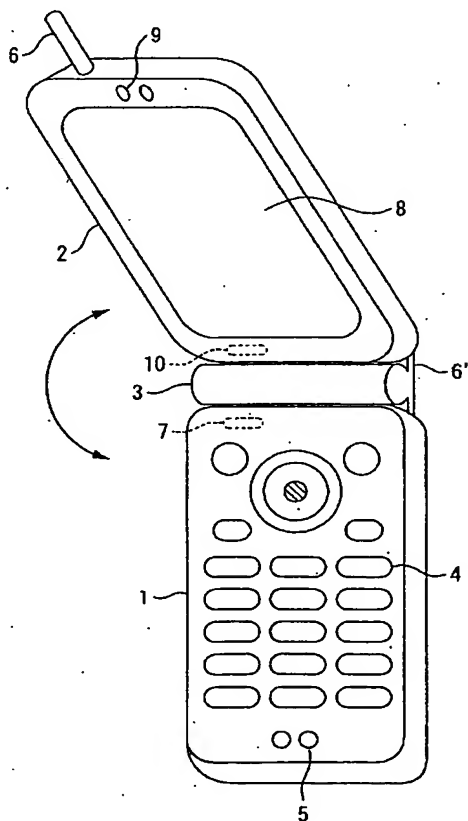
(84) Designated States (*unless otherwise indicated, for every  
kind of regional protection available*): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

(72) Inventor; and

(75) Inventor/Applicant (*for US only*): **IKEDA, Masayuki**

[Continued on next page]

(54) Title: ELECTRONIC APPARATUS AND WIRELESS COMMUNICATION TERMINAL



(57) Abstract: In an electronic apparatus which is equipped with a first transmission unit for performing a first communication by an electromagnetic wave; a second transmission unit for performing a second communication by an electromagnetic wave; and a reception unit for receiving a signal transmitted from the second transmission unit, the electronic apparatus is comprised of an antenna arranged by a radiator having a size which is smaller than  $1/(2\pi)$  of a wavelength of a use electromagnetic wave, which is connected to at least the second transmission unit and the reception unit.

WO 2006/004220 A1



European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**Published:**

— *with international search report*